Dear Friends and Colleagues,

It is my pleasure to introduce you to the inaugural newsletter for the ETSU, Quillen College of Medicine, Department of Pediatrics. Our goal in producing this newsletter is to let our partners, colleagues and friends know about all the new and exciting accomplishments by our Department. The biggest change recently is that we have been growing and expanding our clinical capacity. Over the past 3 years we have added faculty in Endocrinology, Pulmonology, Genetics, Hospital Medicine, Gastroenterology, and Neurology and we added mental health and social work services to our general pediatrics clinical program. We have expanded our research division to new faculty and a Research Manager. We embarked on an innovative educational program for providers in our region called Project ECHO. I will be sharing more about these changes in future newsletters. All the while we have watched our most recent class of residents graduate and find wonderful positions both locally and across the country. Lastly, more exciting events to come include our 33rd Annual ESTU SW Virginal Pediatrics Conference this August 5,6. Please come! I look forward to sharing more in future newsletters.

Kindest Regards, David Wood

By: David Lee Wood, MD, MPH, Professor and Chair
On May 21, 2017 at Warrior State Park in Kingsport TN the annual The Juvenile Diabetic Research Foundation One Walk took place. JDRF One Walk is a fun, family-friendly event where dedicated walkers, volunteers and sponsors raise money to make living with Type One Diabetes safer and healthier—until it is no longer a threat. It is the largest T1D event in the world. Johnson City MSMC Pediatric Endocrinology sees every day the effort that is required on both the patient and family to manage their diabetes. We wanted to show our support and let them know we are here to help make a difference! To be successful in managing and conquering a powerful disease like type one diabetes, it is crucial to combine your forces and maintain a group effort! That is why we partnered with our sister MSMC specialty clinics, Pediatric Neurology and Gastroenterology as well as Niswonger and East Tennessee State University. Our patients, community, and family were also encouraged to join our team. With this powerful force we walked to help JDRF continue to fund life-changing type 1 diabetes (T1D) research and create a world without T1D. We had several different fundraisers including a successful Chick-Filet-A spirit night as well as a ‘pie in the face’ contest. Patients, physicians, and staff had a blast with this fundraising contest. It’s not too late to donate and not too early to get involved with next year’s walk. Get in touch with Tarah Orcutt orcuttm@msha.com for more information. We are passionate to this cause, showing support for our patients, and to aid in helping find a cure for T1D.More info at www.jdrf.org

The Once Upon a Time event held on April 8, 2017 at the Mall at Johnson City was a huge success. This event was held in recognition of National Child Abuse Awareness Month, and celebrated children in the community. For more information about this event: www.facebook.com/readnplay
Meet our 2017–2018 Incoming Pediatrics Residents

ETSU’s Department of Pediatrics welcomes our new 2017-2018 Pediatrics Residents.

Congratulations to the Pediatrics Residents Graduating Friday, June 16th at 6:00 PM

Min Jung- Camarena
Health Center in Madera, CAM

Kiran Kaira- Hospitalist at INOVA in Fairfax, VA

Sugantha Krishnan
Newborn nursery and outpatient pediatrics at Decatur Morgan hospital in Decatur, AL.

Colette Lauhan-Hem/Onc Fellowship at University of California San Diego

Erin Majchrzak-Mountain View Pediatrics in Marion, VA

Daniel Armentrout- First Choice Pediatrics in Johnson City, TN

Keerthy Reddy, TBD

CONGRATULATIONS
RESIDENT NEWS

Awards Banquet

The Awards Banquet was held on April 28, 2017. Congratulations to Drs. Gibson and Macariola who oversee the Pediatrics Clerkship. It was the recipient of the Caduceus’s Award for Department of the Year. This is an award voted by the MS3 students. Brandi Nave was named the Outstanding Clerkship Coordinator, which is awarded by the 3rd year class to the individuals who go beyond their usual duties to assist students as they coordinate their clerkships. Dr. Keerthi Reddy was named Pediatrics Outstanding Resident, awarded by the third year students to individuals who perform as role model residents characterized by approachability, excellent patient care, and willingness to teach. Dr. Demetrio Macariola was named the Outstanding Pediatric Attending of the Year, which is awarded by third year students to the attending physicians who demonstrate superior teaching skills and also serve as excellent physician role models. ETSU’s Department of Pediatrics would like to thank staff, residents and faculty for their dedication to medical education.

Appalachian Student Research Forum 2017

Many Pediatrics faculty and residents were involved with the 2017 Appalachian Student Research Forum, held on April 11-12, 2017 at the D.P. Culp Center at ETSU. This event was coordinated by the Office of Research and sponsored programs, including The Quillen College of Medicine’s, Department of Pediatrics. Dr. Karen Schetzina served as a judge for the poster and oral competitions. Medical Resident, Keerthy Reddy, MD and Pediatric’s Clinical Professor, Alexei Gonzalez-Estrada, MD, participated in a case study on “Forcasting Zika Interest using Google Trends in Tennessee.” as well as a forum with Anjali Malkani, MD on “Youtube and Eosinophilic Eosinophilic Esophagitis: an Assessment of the Educational Quality of information.” Residents, Ashley Ham, Do and Adam Farmer, MD held a case study with Kathryn Idol Xixis, MD on “Subclinical Seizures in a Patient With Autism Spectrum Disorder and Speech Delay.” Further case studies made by Pediatric’s residents and faculty members include the following: “Precision Prostate Cancer Chemoprevention with Gamma-Tocotrienol” and “Precision Prostate Cancer Chemoprevention with Gamm-Tocotrienal By Dr. Marianne Brannon, Dr. William Stone, and Dr. Koyamangalath Krishnan. “Deadly Viral Infection in Disguise” by Dr. Demetrio Macariola. “A Team Care Screening Tool to Address Social Determinants of Health in Pediatric Primary Care” by Matthew Tolliver, PhD and Gayatri Jaishankar, MD. and “Vitamin E in Human Breastmilk” by Heidi Cobarrubias, Marianne Brannon, PhD, and William Stone, PhD.

For More information regarding this event:

FACULTY ANNOUNCEMENTS

ETSU’s Department of Pediatrics would like to congratulate the following individuals:

- Beth Medlin on receiving February Employee of the Month
- Darshan Shah, MD in his new appointment as Division Chief of Neonatology, ETSU Department of Pediatrics. Dr. Shah has been a faculty member in the department since 2008 and was promoted to Associate Professor of Pediatrics in 2013. Dr. Shah will lead the efforts to recruit new faculty in neonatology and collaborate with Niswonger Children’s Hospital to ensure the highest quality of care is provided for critically ill infants in the region.
- Dawn Tuell, MD on being selected to the 2017 Scarlet Sash Society by the Quillen College of Medicine graduating Class of 2017. Dr. Tuell is one of 12 faculty members that has been selected for special recognition as an outstanding educator.

Recently Hired Faculty and Staff

- Tesh Blair – Laboratory Coordinator
- Kathryn Duval – Research Services Manager
- Heather Marshall – Patient Care Specialist
- Monica Simler – Secretary
- Matthew Tolliver, MD – Behavioral Specialist

Kiana Johnson, MD on the adoption of her daughter, Kara-Grace Adelyn Johnson, on March 31, 2017

Dr. & Mrs. Adam Farmer on the birth of their daughter, Roxanna Kay Farmer. 9 lb 11 oz Born on 3/27/17 at 2:31 pm. (Pictured Left)

Dr. & Mrs. John Schweitzer on the birth of his son, Jude Francis Schweitzer. 7 lb 8 oz Born on 1/30/17 at 3:17 am.
Dr. Karen Schetzina, MD
MPH, CLC, FAAP

Congratulations to Doctor Karen Schetzina. Of the 50 applications submitted, her application was one of 3 proposals awarded a 2017 CATCH Planning (cycle 2) grant. The mission of CATCH is to support pediatricians to collaborate within their communities so that all children have access to needed health services and a medical home. She was also selected for the Prevention of Neonatal Abstinence Syndrome Grant for $3880. The link for more information on the CATCH Grant is provided in the following link:

https://www.dropbox.com/s/7565zq8cnIrzi0/CATCHGrant2017B.docx?dl=0

Dr. Schetzina has also accepted the Baby Steps for Success Grant from DCS for $296,495 if renewed for full 5 years. The link to this grant proposal is below:


hypothyroidism after the age of 3 years in infants detected on the first versus second newborn screening test in Oregon, USA." The study was supported by a National Institute of Health T-32 grant. Congenital hypothyroidism (CH) has a reported incidence of 1.2,000 to 1.4,000, is the most common disease detected on the newborn screen (NBS) and represents the most common preventable form of mental retardation. Some children with CH have it for life and others only need treatment for the first three years of life and then can come out of treatment. Children who have it for life have a permanent form and those who need treatment as a child are called transient. The state of Oregon provides a routine NBS like most states but also provides a routine second NBS. Doctor Ford completed a retrospective analysis of these of children diagnosed on the 1st and 2nd Newborn screen. He found that children detected on the first NBS test, 83% were permanent while 17% were transient, while in cases detected on the second NBS test, 23% were permanent and 77% were transient. (OR 16.3, p<0.001). The study provides important novel information on the potential benefits of having a routine second NBS as well as a valuable new information on the management of children with CH detected on the second screen.

Dr. George Ford, MD, MS

Doctor George Ford MD MS published new data on infants screened for congenital hypothyroidism that was published in the official Pediatric Endocrinology journal Hormone Research in Paediatrics (HRP) and was judged by the chief and associate editors as the best original paper from North America published in HRP in 2016. Dr. Ford will be recognized for his accomplishment at the 10th International Meeting of Pediatric Endocrinology in Washington, DC in September 2017. Dr. Ford's study was titled: "Transient versus permanent congenital hypothyroidism after the age of 3 years in infants detected on the first versus second newborn screening test in Oregon, USA." The study was supported by a National Institute of Health T-32 grant. Congenital hypothyroidism (CH) has a reported incidence of 1.2,000 to 1.4,000, is the most common disease detected on the newborn screen (NBS) and represents the most common preventable form of mental retardation. Some children with CH have it for life and others only need treatment for the first three years of life and then can come out of treatment. Children who have it for life have a permanent form and those who need treatment as a child are called transient. The state of Oregon provides a routine NBS like most states but also provides a routine second NBS. Doctor Ford completed a retrospective analysis of these of children diagnosed on the 1st and 2nd Newborn screen. He found that children detected on the first NBS test, 83% were permanent while 17% were transient, while in cases detected on the second NBS test, 23% were permanent and 77% were transient. (OR 16.3, p<0.001). The study provides important novel information on the potential benefits of having a routine second NBS as well as a valuable new information on the management of children with CH detected on the second screen.

ETSU Pediatrics is proud to offer a comprehensive Pediatric Hypertension/Hyperlipidemia Clinic Ahmad Wattad, MD – Pediatric Nephrology Rajani Anand, MD – Pediatric Cardiology We are accepting referrals for pediatric patients with high cholesterol or high blood pressure. Call 423.439.7320 to schedule an appointment. 325 N. State of Franklin Rd. Johnson City, TN 37604 Phone 423.439.7320 Fax 423.439.7343 www.etsuhealthcare.com/etsu-pediatrics

Several of our faculty, a current resident, and a former resident have an article published in Pediatrics in Review this month. The article is an “Index of Suspicion” case entitled “Case 1: Left Breast Swelling in an 11 m/o Girl.” The citation is below.


Full article access requires a subscription to Pediatrics in Review. Below is the link to the first portion of the article; those with a subscription can log in at the bottom of the page and view the rest of the article.

http://pedsinreview.aappublications.org/content/38/5/233

Dr. Bill Stone along with Dr. Koyamangalath Krishnan (ETSU, Internal Medicine) and Dr. Victoria Palau (ETSU, College of Pharmacy) have published a book chapter in “Gastrointestinal Tissues, Oxidative Stress and Dietary Antioxidants” (Academic Press, ISBN: 978-0-12-805377-5). This chapter, “A Systems Medicine Approach to the Role of Vitamins in Protecting the Gastrointestinal Tract from Oxidative Stress”, explores the role that dietary antioxidants, obesity, microbiomes, and genomics play in the etiology of GI disorders.

Evan Los, MD and Bill Stone, PhD received an ETSU RDC grant to study the “biochemical fingerprint” of hypoglycemia in human breath. The aim is to learn more about hypoglycemia physiology as it relates to type 1 diabetes with possible application in medical device development and diabetes alert dogs. The investigator-initiated clinical trial is expected to be conducted in 2017-2018.

FACULTY NEWS
HOW ARE CHILDHOOD CANCERS DIFFERENT FROM ADULT CANCERS?
Cancer is a very heterogeneous disease with complex and tissue-specific causes arising from genetic/epigenetic and environmental factors (4). It is important to understand how childhood cancers are different from adult cancers since such an understanding could inform our knowledge of the underlying athophysiological and molecular mechanisms and suggest new diagnostic/therapeutic approaches. Similarly, it is also important to understand how aging affects cancer. Although not an occult of this review, it has become increasingly clear that the relationship between aging and cancer is complex and not fully understood, e.g., life-extending genetic manipulations in animal models have been shown to attenuate cancer incidence and development (5). Below, we will briefly examine the causes of cancer, compare cancers in adults with those in children/adolescents and summarize what we know about the omics of childhood cancers.

THE THREE PHASES OF CANCER DEVELOPMENT
Cancer is a genetic disease caused by mutations in DNA and altered gene expression that ultimately results in uncontrolled cell growth. A complex web of signal transduction pathways is responsible for maintaining the normal growth and death of cells. Mutations that affect signal transduction pathways are responsible for maintaining the normal growth and death of cells. Mutations that affect signal transduction pathways are responsible for many cancers. DNA is constantly damaged by reactive oxygen species (ROS), reactive nitrogen species (RNOS) and other endogenous compounds that are largely by-products of ongoing oxidative stress and chronic inflammation. Radiation exposure and exogenous carcinogens (e.g. those in cigarette smoke) also cause DNA damage. Most DNA damage repaired before cell division occurs and does not result in a mutation based on to daughter cells. Quickly dividing cells have less opportunity for DNA repair. If cell division occurs before DNA repair (a problem with rapidly dividing cells), the result can be a mutations. Most mutations are either harmless, or evoke apoptotic death in the mutated cell, and do not result in cancer. Eventually, a cell can develop a mutation in a “driver-gene”, which promotes abnormal cell division. This is called the “breakthrough phase” or phase 1. Over time, cells with one driver gene mutation, giving rise to an “expansion phase” (Phase 2) characterized by the development of a benign tumor. For tumor cells to expand they must develop vasculature (angiogenesis) or they would otherwise die (or be limited in growth potential) from hypoxia. There are at least a dozen or so proteins that either promote or inhibit angiogenesis. The third phase of cancer is the “invasive phase” in which at least one additional driver-gene mutation occurs in a surprisingly small number of molecular pathways. In the invasive phase, the cells in a tumor can detach from each other and pass through basement membranes to other tissues/organ, i.e. metastasis. In total, there are only about 200 driver genes out of the 20,000 genes in the human genome. An adult tremor typically harbors from three to eight driver gene mutations.

INFECTIOUS AGENTS, CANCER AND ONCOVIRAL VACCINES
Infectious agents can indirectly promote cancer by causing chronic inflammation with an accompanying increase in the production of mutagenic ROS and RNOS. It is estimated that about 15-20% of worldwide cancers (both adults and children) are associate with viruses. Some viruses directly cause cancer (direct carcinogen) by expressing viral oncogenes contributing to cancer cell transformation. Some viruses in the human papillomavirus (HPV) group and the Epstein-Bar (EBV) group are examples of cancer-causing viruses, i.e., oncoviruses. High-risk HPV infections are the primary cause of cervical, anal and oropharyngeal cancers in adults cervical, anal and oropharyngeal cancers in adults. HPV oncogenic viruses are highly relevant to pediatric oncology since childhood HPV vaccination is remarkably effective at reducing the types of cancers caused by these viruses. Moreover, DNA evidence suggests that HPV from infected mothers can be transmitted in utero to the developing fetus. The overall role of infectious agents in childhood cancers has been reviewed by Alibek et al. and does an excellent job of evaluating the strong association of EBV infections and childhood leukemias. The American Cancer Society lists EBV infection as a key risk factor for acute lymphocytic leukemia.

To read this complete article: Childhood Cancers and Systems Medicine